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graphs of apparatus, but of adequate sectional drawings of details.

The principal chapter headings are as follows: Magic Lantern with Direct Current; Magic Lantern with Alternating Current; Magic Lantern for Use on House Electric Lighting System; Magic Lantern with Lime Light; Magic Lantern with Petroleum, Gas, Acetylene, and Alcohol Lamps; Magic Lantern with Sunlight; Projection of Opaque Objects; Preparation of Lantern Slides; Projection Microscope; Drawing and Photography with Projection Apparatus; Moving Pictures; Projection Rooms and Screens; Electric Currents and their Measurement,—Wiring, Control, Candle Power, etc.; Optics of Projection; Uses of Projection in Physics; Normal Vision and Eye defects.

The appendix contains an account of the origin and development of projection apparatus; makers and dealers in this apparatus; bibliography; and an extended index.

There is nothing in print which will so nearly give all he must have to the worker who must himself install his apparatus from the ground up, and control its manipulation.

Optic Projection, by S. H. and H. P. Gage. Comstock Publishing Co., Ithaca, N. Y. Illustrated, 731 pages. Price \$3.00, postpaid.

THE EVOLUTION OF SEX IN PLANTS.

Under this title Dr. J. M. Coulter writes the initial number of a new Science Series to be issued by the University of Chicago. The expressed purpose of this series is to bring alike to the specialist and the layman summaries of generally accepted results in various fields of investigation with a minimum of technical details. Each issue will limit itself to the statement of a single problem.

The present topic is discussed in eight chapters, as follows:—1, Asexual Reproduction; 2, Origin of Sex; 3, Differentiation of Sex; 4, Evolution of Sex Organs; 5, Alternation of Generations; 6, Differentiation of Sexual Individuals; 7, Parthenogenesis; and 8, A Theory of Sex. The book as a whole is a luminous organization of the facts with which the teachers of Botany are familiar.

Of course plants show the most remarkable persistence of non-sexual reproduction. The lowest plants have no other method.

Gradually the sexual method is introduced side by side with the asexual, and as a modification of it. Later, the sexual method alternates regularly with the asexual in distinct generations; and in the Bryophytes about half way up the plant kingdom, the sexual becomes the dominant generation. In all the higher plants including the Pteridophytes, there is a reduction of the sexual stage amounting to a suppression of almost every thing except the sex cells themselves, and the subordination of the gametophyte and its dependence on the asexual sporophyte. In the animals on the contrary the asexual methods disappear and the sexual reproduction stands alone in the higher forms.

The diversity of sex first shows itself in the sex cells,—ova and antherozoids. Next the organs that produce these different cells differentiate. Finally we find the plants that bear the different sex organs come to differ. The influence of the sex function does not stop, however, with the gametophyte. In the higher plants, notwithstanding the fact that the gametophytes become much reduced, the dimorphism related to sex works back into the sporophyte structures. The spores destined to produce the two types of gametophytes become differentiated; the microsporangium and microsporophyll differ from the megasporangium and the megasporophyll. And in dioecious plants the sporophyte that finally gives rise to the male issue may differ from that which gives rise to the female.

The amateur worker with the microscope will find that this little book will make more full of meaning his studies of the lower plants.

The Evolution of Sex in Plants, by Professor John M. Coulter. University of Chicago Press, 1914. Illustrated; 140 pages. Price \$1.00 net.

PSYCHOBIOLOGY

The structural biology foundational to psychology is presented by Knight Dunlap of Johns Hopkins University in a small volume recently issued. The purpose of the book is to emphasize, for the psychological student who has not had a thoro course in morphology, the details of histology and gross anatomy which are of greatest